

Title (en)

METHOD FOR PREDICTING WHERE THE NEXT MAJOR EARTHQUAKE WILL TAKE PLACE WITHIN AN AREA

Title (de)

VERFAHREN ZUR VORHERSAGE, WO IN EINEM GEBIET DAS NÄCHSTE GROSSE ERDBEBEN STATTFINDEN WIRD

Title (fr)

PROCÉDÉ PERMETTANT DE PRÉDIRE L'ENDROIT OÙ LE PROCHAIN TREMBLEMENT DE TERRE MAJEUR AURA LIEU DANS UNE ZONE

Publication

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Application

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Priority

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Abstract (en)

[origin: WO2008060213A1] The present invention relates to a method of predicting where the next major earth- quake will occur within a area based on knowledge of the stress tensor field in the area, including determining stress tensors that have caused a shear slip in the form of an earthquake. It is first assumed that said first shear slip is the only one that is not stable according the Mohr-Coulomb slip criterion applied to contemplated fault planes with all conceivable orientations and calculating according to the Mohr- Coulomb slip criterion the principal stress directions as a function of the friction coefficient f . After that, it is established according to the Mohr-Coulomb slip criterion a relationship between two of the principal stresses. Moreover the normal stress s_v in a known direction S_v is determined and, according to the elasticity theory, a relationship between the normal stress s_v and the principal stresses is established. Then expressions of the three principal stresses as a function of a scalar parameter is established, and a function of the elastic deformation energy per unit of volume relative to an isotropic reference stress state with the pressure s_v based on the expressions of the principal stresses is established. Finally, the remaining degree of freedom is eliminated by determining the value of said scalar parameter which minimises the function of the elastic deformation energy and the value of the scalar parameter in the expressions of the principal stresses is inserted.

IPC 8 full level

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